

### *Amendments to the Claims*

Claims 1-5 (Cancelled).

Claim 6 (Previously presented): System according to Claim 33, in which the unit used to determine the actual glucose concentration  $G_a$  is a microdialysis device.

Claim 7 (Previously presented): System according to Claim 33 that also includes a display unit for displaying the extrapolated glucose concentration  $G_p$ .

Claim 8 (Previously presented): System according to Claim 33 that also includes a warning unit that emits a warning signal when the extrapolated glucose concentration  $G_p$  is outside a selected normal range.

Claim 9 (Currently amended): System according to Claim 33 in which ~~the~~ a user enters the carbohydrate units consumed ( $KH_j$ ).

Claim 10 (Previously presented): System according to Claim 33 in which the system contains a control unit for an insulin infusion device or is connected to such a device, and in which the insulin doses administered ( $I_i$ ) and their times of administration ( $t_i$ ) are transmitted from the control unit to the data input device for entering insulin doses.

Claims 11-32 (Cancelled).

Claim 33 (Currently amended): System for the extrapolation of a glucose concentration, comprising:

a data input device for entering insulin doses administered ( $I_i$ ) and their times of administration ( $t_i$ ),

the same or a second data input device for entering carbohydrates ( $KH_j$ ) consumed or to be consumed, and their times of consumption ( $t_j$ ),

a unit for ~~determining~~ measuring the actual glucose concentration ( $G_a$ ) in a patient's bodily fluid at a specific point in time ( $t_a$ ),

a memory unit for storing administered insulin doses and their times of administration, and carbohydrates consumed and their times of consumption,

an evaluation device for evaluating the data stored in the memory unit and extrapolating a glucose concentration at a point in time ( $t_p$ ), whereby  $t_p$  is after  $t_a$ , and the extrapolation comprises the following steps:

determination of the portion ( $I_{\text{wirk}}$ ) of insulin doses that take effect within the interval between  $t_a$  and  $t_p$ ,

determination of the portion ( $KH_{\text{wirk}}$ ) of carbohydrates consumed that take effect in the interval between  $t_a$  and  $t_p$ , and

determination of an extrapolated glucose concentration  $G_p$  at the point in time  $t_p$  using  $I_{\text{wirk}}$  and  $KH_{\text{wirk}}$ , wherein

the portion of insulin doses ( $I_{\text{wirk}}$ ) that take effect in the period between  $t_a$  and  $t_p$  is calculated using the following formula

$$I_{\text{WIRK}} = \sum_{i=1}^n \int_{t_a}^{t_p} C_i(t) dt (I_i); n = \text{number of insulin doses to be considered}$$

whereby  $C_i$  represents the quantity of insulin that is bioavailable at the point in time  $t$  and therefore represents the insulin effectiveness profile; with

$$\int_0^{\infty} C_i(t) dt = 1.$$

Claims 34-35 (Cancelled).

Claim 36 (Previously presented): System according to Claim 33, in which the point in time  $t_p$  is from 0.5 to 5 hours after  $t_a$ .

Claim 37 (Previously presented): System according to Claim 33, in which the point in time  $t_p$  is at least 2 hours after  $t_a$  and up to 4 hours after  $t_a$ .

Claims 38-45 (Cancelled).